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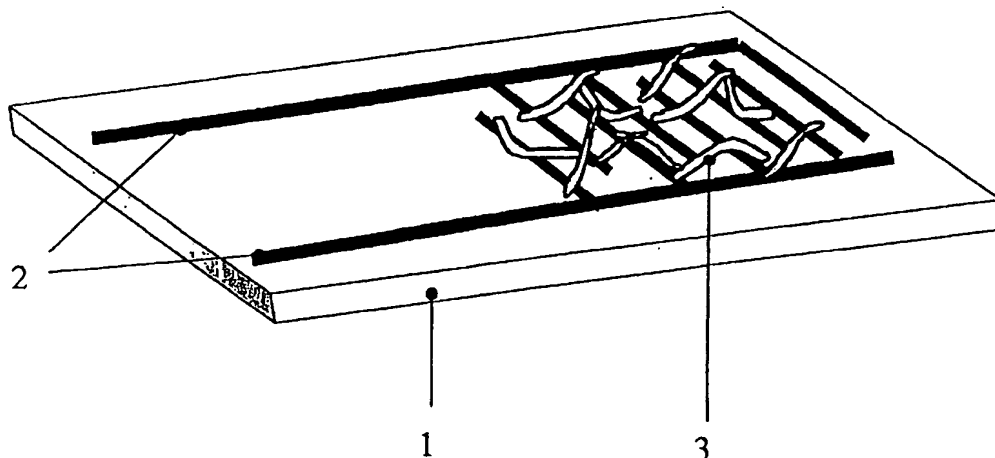
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(54) Title: THE USE OF 1D SEMICONDUCTOR MATERIALS AS CHEMICAL SENSING MATERIALS, PRODUCED AND OPERATED CLOSE TO ROOM TEMPERATURE



(57) Abstract: The application relates to a chemical sensor device comprising a substrate (1), a sensor medium (3) formed on the substrate, the sensor medium comprising one-dimensional nanoparticles, wherein the one-dimensional nanoparticles essentially consist of a semiconducting A_xB_y compound, e.g. V_2O_5 and detection means (2) for detecting a change of a physical property of the sensor medium e.g. conductivity. The porosity of the sensor medium supports a fast access of the analyte to the sensing material and therefore a fast response of the sensor. The selectivity and sensitivity of the sensor can be tailored by doping the one-dimensional nanoscale material with different dopants or by varying the dopant concentration. Sensitivity of the sensor device to an analyte, preferably an amine, can be increased by increasing relative humidity of the sample to at least 5 %.

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